




UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1800
Alexandria, Virginia 22313-1800
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,887	06/01/2001	Robert Angelo Mercuri	P-1047/N 73-43	2070
7500 02/28/2004 James R. Cartiglia Grafftech, Inc. Brandywine West 1521 Concord Pike, Suite 301 Wilmington, DE 19803			EXAMINER PIAZZA CORCORAN, GLADYS JOSEFINA	
			ART UNIT 1733	PAPER NUMBER
DATE MAILED: 02/20/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/871,887	MERCURI, ROBERT ANGELO
Examiner	Art Unit
Gladys JP Corcoran	1733 

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/05)
Paper No(s)/Mail Date September 5, 2003
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The references in the information disclosure statement filed September 5, 2003 have all been previously cited in the Notice of References Cited PTO-892 filed on December 6, 2002. Consequently the references have been crossed out as duplicates.

Claim Objections

2. Claims are objected to because of the following informalities:

Claim 14 recites, "comprises about the same as the", which should be --is about the same as the--.

Claim 18 recites, "comprises substantially the same as the", which should be --is substantially the same as the--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 11-14, 17, 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 11, now recites that "step (b) comprises embossing a second sheet of resin impregnated graphite material from the second component". The Specification discloses the embossing step forms the recess in the back side of the second component. There is no disclosure of first forming a second component with a recess on its back side as claimed in claim 1 and then embossing material from the second component. It is suggested to amend the claim to recite the limitations as previously presented, - step (b) comprises embossing a second sheet of resin impregnated graphite material to form the second component--.

Claim 12 now recites, "the graphite material of the first component comprises a second flexible graphite sheet". While claim 2 recites, "embossing a sheet of resin impregnated graphite material to form the first component". There is no disclosure in the specification of forming the first component of multiple graphite sheets. This change also provides support problems for the claims dependent upon claim 12. It is suggested to amend the claim to recite the limitations as previously presented in claim 12.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-14, 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 is unclear by reciting in the preamble, "A method of manufacturing a bipolar graphite article," and then not positively reciting forming a bipolar graphite article

in the body of the claim. It is suggested to positively recite that a bipolar graphite article is formed.

8. Claim 10 recites the limitation "the components" in line 19. There is insufficient antecedent basis for this limitation in the claim. It is suggested to amend to --the first and second components--.

9. Claim 11 is unclear by reciting, "step (b) comprises embossing a second sheet of resin impregnated graphite material from the second component". The Specification only discloses the embossing step forms the recess in the back side of the second component. There is no disclosure of first forming a second component with a recess on its back side as claimed in claim 1 and then embossing material from the second component. Therefore it is unclear what Applicant intends, that the embossing step forms the recess, or that the recessed component is later embossed. It is suggested to amend the claim to recite the limitations as previously presented, -- step (b) comprises embossing a second sheet of resin impregnated graphite material to form the second component--.

10. Claim 12 is unclear by reciting, "the graphite material of the first component comprises a second flexible graphite sheet". While claim 2 recites, "embossing a sheet of resin impregnated graphite material to form the first component". There is no disclosure in the specification of forming the first component of multiple graphite sheets. There is no recitation of a first flexible graphite sheet, therefore it is unclear how the first component comprises a second flexible graphite sheet. It is unclear as to whether Applicant intends the first component to comprise one or two graphite sheets. This

change also makes the claims dependent upon claim 12 unclear. It is suggested to amend the claim to recite the limitations as previously presented in claim 12.

11. Claim 13 recites the limitation "the first graphite sheet" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear which graphite sheet Applicant is referring to. It is suggested to amend the first recitation of the graphite sheet Applicant intends to recite a first graphite sheet.

12. Claim 14 recites the limitation "the first graphite sheet" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear which graphite sheet Applicant is referring to. It is suggested to amend the first recitation of the graphite sheet Applicant intends to recite a first graphite sheet.

13. Claim 17 recites the limitation "the first flexible graphite sheet" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear which graphite sheet Applicant is referring to. It is suggested to amend the first recitation of the graphite sheet Applicant intends to recite a first flexible graphite sheet.

14. Claim 18 recites the limitation "the first flexible graphite sheet" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear which graphite sheet Applicant is referring to. It is suggested to amend the first recitation of the graphite sheet Applicant intends to recite a first flexible graphite sheet.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,416,955) and/or van Ommering et al. (US Patent No. 4,565,749).

Dettling discloses a method of manufacturing a bipolar graphite article (bipolar assembly 36) by forming a first component (distribution plate 18, 402) of graphite material with an operative side (with grooves) and a back side, forming a second component (distribution plate 20, 404) of graphite material with an operative side (with grooves) and a back side, and assembling the components (column 7, lines 5-10, 64-68; column 8, lines 29-42).

Dettling discloses the importance of forming a tight seal between the two components (column 2, lines 20-25). Additionally, it is well known in the bonding art to provide two plates with interlocking configurations in order to secure a tight seal or bond between the plates. For example, Chi discloses a method of securing the plates of a fuel cell together where an integral seal is formed between cooling plates by providing the plates with male and female joints as an alternative to other known methods (column 3, lines 43-47). Furthermore, van Ommering discloses another example in the field of manufacturing fuel cells where it is known to provide corresponding tongue 43 and groove 41 elements on two components (frame segments 21 and 23) in order to provide a positive seal between the components (column 6, lines 29-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the components in the method of manufacturing a bipolar graphite article as shown in

Dettling with a protrusion and a corresponding recess in order to form a better seal between the components as is well known in the bonding arts in general and as particularly known in the field of forming fuel cells as exemplified by Chi and/or van Ommering.

As to claim 8, Dettling discloses pressing the components together (column 7, lines 66-68).

17. Claims 2-7, 9-14, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering et al. as applied to claims 1 and 8 above, and further in view of Mercuri '074 (US Patent No. 6,037,074).

Dettling does not specifically disclose the method steps of forming the graphite components, only reciting that the plates are molded or extruded from graphite particles (column 8, lines 29-43). Mercuri '074 discloses known methods of forming graphite component plates for flow field plates in fuel cells, such as those discussed below. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling, Chi and/or van Ommering by forming the graphite components by known methods in the art as shown by Mercuri '074 in order to provide graphite components with increased sealability, increased flexural strength, improved heat dispersion and lower voltage drop (column 3, lines 34-37; column 4, lines 46-51).

As to claims 2, 11 and 19, Mercuri '074 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by stamping and embossing rollers) a sheet of resin-impregnated graphite material (column 4, lines 54-

62; column 5, lines 49-53). As to claim 3, the sheet was uncured at the forming step (the sheet is dried prior to stamping, however curing does not take place until after the plate is stamped and heated to 235°C (column 4, line 54 to column 5, line 3)). As to claim 4, the resin impregnated graphite material is cured (column 5, lines 1-3). As to claim 5, Mercuri '074 discloses compressing the resin impregnated graphite material (calendered, column 4, lines 9-16; stamping into shape, column 4, lines 54-63). As to claim 6, the resin impregnated graphite material is uncured at the forming step (the sheet is dried prior to stamping, however curing does not take place until after the plate is stamped and heated to 235°C (column 4, line 54 to column 5, line 3)). As to claim 7, the resin impregnated graphite material is cured (column 5, lines 1-3). As to claim 9, Mercuri '074 discloses the graphite material is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step in particular during the step of pressing and bonding the layers together (column 6, lines 58-67). Dettling discloses heating the graphite components during the pressing step to assemble the components together. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps, particularly in view of Mercuri '074 which shows it is known in the art to bond formed sheets by curing during the pressing step (column 6, lines 58-67). Only the expected results would be attained. As to claim 11, Dettling discloses heating after assembling (hot pressing) and Mercuri '074 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by stamping and embossing rollers) a sheet of resin-impregnated graphite

material (column 4, lines 54-62; column 5, lines 49-53). As to claim 12, the components in Dettling are formed of flexible graphite sheets (as are conventional due to their relatively thin layers) and furthermore, Mercuri '074 discloses forming flexible graphite sheets (column 3, lines 34-39). As to claim 13, Mercuri '074 discloses a resin content greater than 5% (15-20% resin see examples in column 4). Furthermore, the claimed ranges of resin are within the conventional ranges, and it would have been well within the purview of one of ordinary skill in the art to provide such ranges, only the expected results would be attained. As to claim 14, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same composition and content of resin, only the expected results would be attained. As to claim 17, Mercuri '074 discloses the claimed density of the graphite sheet (see column 4, lines 16,40 to 45, 68 and column 5, line 1). Furthermore, the claimed density ranges are within the conventional ranges for graphite sheets and it would have been well within the purview of one of ordinary skill in the art to provide sheets with conventional densities, only the expected results would be attained. As to claim 18, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same density, only the expected results would be attained. As to claim 19, Dettling discloses bonding the components after assembling (column 4, lines 15-25) and Mercuri '074 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by stamping) a sheet of resin-impregnated graphite material (column 4, lines 54-62). As to claim 20, Dettling bonds the components by heating up the bipolar graphite article (column 4, lines 15-25).

18. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering and Mercuri '074 as applied to the claims above, and further in view of Edgington et al. (US Patent No. 5,589,301).

As discussed above, Dettling discloses manufacturing a graphite bipolar article by forming two graphite components and then pressing the components in order to assemble the plates together and bonding the components to form the bipolar article for a fuel cell. As discussed above, it would have been obvious to provide a corresponding protrusion and recess in the components as is well known and exemplified by Chi and/or van Ommering in order to provide an improved seal. Also, as discussed above, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the graphite components from known methods as shown by Mercuri '074 that are later cured in a heating step.

As to claim 10, Mercuri '074 discloses providing sheets of compressed mass of expanded graphite particles for the graphite components (column 4, lines 54-55), then impregnating the sheet with a resin to form uncured resin impregnated sheets (column 4, lines 55-58), then embossing (mechanically stamping into a shape) to form the sheet components, and curing the resin in the components (column 5, lines 1-3).

Mercuri '074 discloses that the preferred method is to calender the resin containing sheet by roll pressing (column 3, lines 36-38), however does not explicitly state that the resin impregnated sheet is calendered prior to the embossing step. It is known to calender impregnated webs in order to properly impregnate the web and to achieve the desired thickness of the web prior to further processing. For example,

Edgington discloses a method of impregnating a web where the web is calendered between rollers 17 in order to impregnate the web and to achieve a uniform thickness prior to further processing steps (column 5, lines 44-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar article as shown by Dettling, Chi and/or van Ommering and Mercuri '074, by calendering the resin impregnated graphite sheet prior to embossing as is well known and exemplified by Edgington in order to provide uniform thickness and to properly impregnate the web prior to further processing.

19. Claims 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering and Mercuri '074 (optionally in view of Edgington) as applied to claims 8 and 10 above, and further in view of Selover, Jr. et al. (US Patent No. 4,014,730).

It is noted that Claim 10 currently does not distinctly claim that the curing step bonds the components together.

It is well known to bond two uncured resin impregnated composites by pressing, curing and bonding in the same step. Dettling discloses heating the graphite components during the pressing step to assemble the components together. Mercuri '074 discloses the graphite material is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step and also curing and bonding the sheets together (column 6, lines 58-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps. Only the expected results

would be attained. This is particularly true in view of Selover, which discloses it is known to bond two resin impregnated graphite components by curing during the pressing step (column 2, lines 49 to column 3, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling et al., Chi and/or van Ommering and Mercuri '074 (and optionally Edgington) by curing the resin impregnated graphite component during the pressing step in order to reduce the number of manufacturing steps and as is known in the art and exemplified by Selover when bonding two graphite components.

20. Claims 2-7, 9-14, 17-20 are rejected under 35 U.S.C. 103(a) as being obvious over Dettling et al. in view of Chi and/or van Ommering et al. as applied to claims 1 and 8 above, and further in view Mercuri '336 et al. (US Patent No. 6,432,336).

The applied reference Mercuri '336 has a common Inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer

in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Dettling discloses forming a graphite bipolar article by forming two components and bonding the components together during pressing. However, Dettling does not specifically disclose the method steps of forming the graphite components, only reciting that the plates are molded or extruded from graphite particles (column 8, lines 29-43). Mercuri '336 discloses known methods of forming graphite component plates for flow field plates in fuel cells as discussed below. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling, Chi and/or van Ommering by forming the graphite components by known methods in the art as shown by Mercuri '336 in order to provide graphite components with increased sealability and increased strength (column 3, lines 6-14).

As to claims 2, 11 and 19, Mercuri '336 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by embossing) a sheet of resin-impregnated graphite material (column 9, lines 43-46). As to claim 3, the sheet was uncured at the forming step (column 9, lines 43-47). As to claim 4, the resin impregnated graphite material is cured (column 9, lines 46-47). As to claim 5, Mercuri '336 discloses compressing the resin impregnated graphite material (column 9, lines 39-

40). As to claim 6, the resin impregnated graphite material is uncured at the forming step (column 9, lines 43-47). As to claim 7, the resin impregnated graphite material is cured (column 9, lines 46-47). As to claim 9, Mercuri '336 discloses the graphite material is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step. Dettling discloses heating the graphite components during the pressing step to assemble the components together. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps. Only the expected results would be attained. As to claim 10, Mercuri '336 discloses providing sheets of compressed mass of expanded graphite particles for the graphite components (column 9, lines 19-33), then impregnating the sheet with a resin to form uncured resin impregnated sheets (column 9, lines 34-38), then the uncured resin impregnated sheet is calendered (column 9, lines 39-44), then embossing to form the sheet components (column 9, lines 43-45), and curing the resin in the components (column 9, lines 46-47). As to claim 11, Dettling discloses heating after assembling (hot pressing; column 4, lines 15-25) and Mercuri '336 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by embossing) a sheet of resin-impregnated graphite material (column 9, lines 43-46). As to claim 12, the components in Dettling are formed of flexible graphite sheets (as are conventional due to their relatively thin layers) and Mercuri '336 discloses forming flexible graphite sheets (column 1, line 11). As to claim 13, the claimed ranges of resin are within the conventional ranges, and it would have been well within the purview of one of ordinary

skill in the art to provide such ranges, only the expected results would be attained. As to claim 14, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same composition and content of resin, only the expected results would be attained. As to claim 17, Mercuri '336 discloses the claimed density of the graphite sheet (column 7, lines 53-55). Furthermore, the claimed density ranges are within the conventional ranges for graphite sheets and it would have been well within the purview of one of ordinary skill in the art to provide sheets with conventional densities, only the expected results would be attained. As to claim 18, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same density, only the expected results would be attained. As to claim 19, Dettling discloses bonding the components after assembling (column 4, lines 15-25) and Mercuri '336 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by embossing) a sheet of resin-impregnated graphite material (column 9, lines 43-46). As to claim 20, Dettling bonds the components by heating up the bipolar graphite article (column 4, lines 15-25).

21. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering and Mercuri '336 as applied to claim 10 above, and further in view of Selover, Jr. et al. (US Patent No. 4,014,730).

It is noted that Claim 10 currently does not distinctly claim that the curing step bonds the components together.

It is well known to bond two uncured resin impregnated composites by pressing, curing and bonding in the same step. Mercuri '336 discloses the graphite material is

resin impregnated and uncured at the step of forming and then curing occurs at a later heating step. Dettling discloses heating the graphite components during the pressing step to assemble the components together. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps. Only the expected results would be attained. This is particularly true in view of Selover, which discloses it is known to bond two resin impregnated graphite components by curing during the pressing step (column 2, lines 49 to column 3, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling et al., Chi and/or van Ommering and Mercuri '336 by curing the resin impregnated graphite component during the pressing step in order to reduce the number of manufacturing steps and as is known in the art and exemplified by Selover when bonding two graphite components.

Double Patenting

22. Claim 1 of this application conflicts with claim 10 of Application No. 10/185,085. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

23. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or

discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

24. Claim 1 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 10 of copending Application No. 10/185,085. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

25. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

26. Claims 1-9, 11-14, 17-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/185085 in view of Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,416,955) and/or van Ommering et al. (US Patent No. 4,565,749) and further in view of Mercuri '074 (5,885,728).

Claims 1-9 of 10/185085 disclose all the limitations of claims 1-9 of the current Application except that the graphite article is a bipolar graphite article and that the second component has a recess complementary to the protrusion of the first component where the protrusion is received in the recess. These limitations are fully disclosed by the references Dettling, Chi, and/or van Ommering as discussed above. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming a graphite article as shown in 10/185085 for forming a bipolar article and where the second component has a recess for the protrusion to be received in as shown by Dettling, Chi, and/or van Ommering. Claims 11-14, 17-20 are rejected in view of Mercuri '074 as discussed above.

This is a provisional obviousness-type double patenting rejection.

27. Claim 10 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 10/185085 in view of Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,416,955) and/or van Ommering et al. (US Patent No. 4,565,749), Mercuri '074 (5,885,728), and Edgington et al. (US Patent No. 5,589,301).

Claim 13 of 10/185085 disclose all the limitations of claim 10 of the current Application except that the graphite article is a bipolar article, that the uncured resin impregnated sheets are calendared and then embossed, and that the second component has a recess where the protrusion is received in the recess. These limitations are fully disclosed by the references Dettling, Chi, and/or van Ommering as discussed above. It would have been obvious to one of ordinary skill in the art at the

time of the invention to provide the method of forming a graphite article as shown in 10/185085 for forming a bipolar article and where the second component has a recess for the protrusion to be received in as shown by Dettling, Chi, and/or van Ommering. Claims 11-14, 17-20 are rejected in view of Mercuri '074 as discussed above.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

28. Applicant's arguments filed August 20, 2003 have been fully considered but they are not persuasive.

Applicant argues on page 7 that while the Dettling reference discloses a method of sealing a bipolar assembly, it does not disclose the claimed method of sealing a bipolar assembly with a protrusion/recess. The Dettling reference was cited to show it is known in the art to bond and seal bipolar graphite materials together where it is recognized the importance of a good seal between the material layers. As stated in the prior Office Actions, it is well known in the bonding art in general to provide parts with interlocking configurations in order to secure a tight seal or bond between the plates. The references Chi and van Ommering were further cited to show particular examples in the fuel cell art that show the known method of providing parts with interlocking configurations (such as a protrusion and a recess) in order to secure a tight seal or bond between the plates.

Applicant argues on page 7 that the secondary references are only cited as examples of different sealing or bonding disclosures found in the art, and that none of the references show the protrusion/recess bonding means disclosed and claimed.

Applicant is incorrect in stating that none of the references consist of the protrusion/recess bonding means disclosed and claimed. The claims require that one component of the bipolar plate assembly has a protrusion and a second component of the bipolar plate has a recess complementary to the protrusion and receiving the protrusion. The references Chi and van Ommering do disclose protrusion and recess means for bonding plates in the fuel cell art in order to provide a stronger seal between the plates (Chi: column 3, lines 43-47; van Ommering: column 6, lines 29-50).

Applicant further argues on pages 7-8 that it is not proper to rely on what is well known in the art when what is asserted to be well known is a key or critical aspect of the rejected claims. Applicant further states that nothing in the cited references nor in the fuel art discloses a bipolar graphite article formed from graphite sheets one with a protrusion, the other with a recess and assembled with the protrusion in the recess. Applicant is incorrect in stating that the Examiner relied on what is well known in the art for what is a key or critical aspect of the claim. The Examiner did not state that it was well known in the art to use protrusions and recesses on the backsides of graphite components to assemble the components. The Examiner stated that it is well known in the bonding art to provide two plates with interlocking configurations in order to secure a tight seal or bond between the plates and then cited examples in the fuel cell art that show such a bonding method (Chi and van Ommering). Applicant has not argued that it is not known in the bonding arts to provide interlocking configurations. Furthermore, the Examiner cited the references Chi and van Ommering as evidence of the well known

method of providing a protrusion and a recess in plates bonded to each other and which are particularly in the fuel cell art.

Applicant argues on page 8 that it is not appropriate to take notice of facts without citation of a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well known. Applicant further argues on page 8 that taking notice of facts as being well known in the art should only be done to "fill in the gaps" in an insubstantial manner and never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which rejection was based. Finally, Applicant further states that the facts not seen in any of the prior art references are asserted to be well known as a way providing the principle support upon which the rejection is based rather than to simply fill in the gaps in an insubstantial manner. It is noted, Applicant has not argued that it is not well known in the bonding arts to provide interlocking configurations in order to secure a tight seal or bond between the parts. Furthermore, the Examiner has indeed provided citation of the references Chi and van Ommering, not only to show that it is known to provide protrusions and recesses for sealing plates but also to show it is known in the particular art of Applicants invention and the primary reference, the fuel cell art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gladys J Piazza Corcoran whose telephone number is

(571) 272-1214. The examiner can normally be reached on M-F 8am-5:30pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Gladys JP Corcoran
Examiner
Art Unit 1733

GJPC